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The Child Behavior Checklist for Group Care Workers: A Study Regarding the Factor Structure

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In this study we examined the factor structure of the Child Behavior Checklist (CBCL) filled out by group care workers. Group care workers' judgements were collected on 846 children and adolescents treated in various residential settings in The Netherlands. Using confirmatory factor analysis, we were able to show that the original CBCL factor model based on parental judgments of child behavior also fits for the judgments of group care workers. This means that the well known 8 narrow-band syndromes (Withdrawn, Somatic Complaints, etc.) as well as the 2 broad-band syndromes (Internalizing and Externalizing) can be used to interpret the CBCL scores of group care workers. This confirmation of the CBCL factor structure is a first step to add a group care worker version to the CBCL family. However, as a second step, normative data need to be gathered to further enhance the use of the CBCL for group care workers.

KEY WORDS: Child Behavior Checklist (CBCL); group care workers; emotional and behavioral problems; confirmatory factor analysis.

The Child Behavior Checklist (CBCL) is originally an American behavioral questionnaire (Achenbach & Edelbrock, 1983; Achenbach, 1991a), which has become widely known in recent years and is now used in more than 30 countries. By reporting for each of more than a hundred concrete behavioral problems whether this behavior is "not," "somewhat or sometimes," or "very much or often" seen, parents give a detailed picture of their children's behavioral problems. Research has shown that these concrete behaviors can be grouped around eight factors or narrow-band syndromes, also known as "core syndromes": Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior (Achenbach, 1991a; De Groot, Koot, & Verhulst, 1994; Dedrick, Greenbaum, Friedman, Wetherington, & Knoff, 1997). These eight narrow-band syndromes can be grouped under two broad-band syndromes, designated as Internalizing and Externalizing. A Total problem score can be calculated to give a general impression of the seriousness of the problem behaviors present.

The development of the CBCL marked the beginning of the development of a series of behavioral questionnaires, each meant for a different informant. This has resulted in the construction of the Teacher's Report Form (TRF; Achenbach, 1991b) and the Youth Self-Report (YSR; Achenbach, 1991c). These questionnaires all have the same hierarchical structure: a large number of items, which can be grouped under eight narrow-band syndromes, two broad-band syndromes, and a Total problem scale. By using the CBCL, TRF, and YSR, observations on the problem behaviors of a specific child can be obtained from different informants. By now, the CBCL and related instruments have been used as a measure of psychopathology in hundreds of studies with widely divergent aims (for a comprehensive bibliography see Brown & Achenbach, 1997).

Strikingly absent in the "family" of CBCL and related instruments is a questionnaire for group care workers. This absence is conspicuous, as an important part of youth care takes place in institutions for residential or day care, where time spent in a group setting is a fundamental element of treatment. After parents and teachers, group care workers

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experience the child intensively and are capable of making relevant observations. Also, they frequently report on their observations in a professional capacity during staff meetings. An instrument such as the CBCL would not only be a good means to standardize these reports, but would also create the possibility of systematic comparisons with the observations of others. Until now, no publications on the psychometric characteristics of a CBCL for group care workers have been found in research literature.

At present, group care workers often fill out the parent version of the CBCL as part of routine clinical practice or as part of a research project (Kazdin & Bass, 1988; Ten Brink, 1998). To interpret these data, their answers are scored by means of the procedure used for parents and are compared with the normative data gathered from parents. This procedure runs up against two difficulties. First, it is not known whether the factor structure of the CBCL for group care workers is similar to the factor structure found for parents. In other words, do group care workers observe the children in a way similar to that in which they are observed by their parents and teachers? Second, even if the factor structure found for group care workers is similar to that for parents, it is still not known whether the normative data gathered from parents are applicable to the group care workers' scores, leading to an unsatisfactory situation in which the extent to which a child differs from what is considered normal cannot be adequately determined. Considering the paucity of standardized and validated measures to evaluate children in residential settings, it is important to resolve these issues (Kazdin & Bass, 1988; Bates, English, & Kouidou-Giles, 1997).

This article addresses the first issue. Because the CBCL (parents), TRF (teachers), and YSR (self-reporting adolescents) all have a comparable hierarchical structure, the same might be expected for the observations of group care workers. In contrast, one could argue that group care workers, who are professionally trained to judge children's emotional and behavioral problems and who are experienced in dealing with children who suffer from emotional or behavioral disorders, have either a more global view of the behavior (they are used to a lot of disruptive behavior) or a more carefully balanced appraisal (they see aspects that others miss). If this is the case, less or more than eight factors might be needed to account for the variance in the group care workers' scores. The aim of this study is therefore to examine whether the factor structure of the parent version of CBCL also adequately describes the CBCL answers of group care workers. The examination of fit of the CBCL factor structure includes both the fit of the eight narrow-band syndromes as first-order factors and the two broad-band syndromes as second-order factors.

METHOD

Participants

In this study, the CBCL data of 846 children and adolescents are used. All data were gathered from group care workers working in several child psychiatric clinics and child welfare institutes in The Netherlands, including services for children with a mental or physical handicap suffering from emotional and behavioral problems. The data were collected at the research department of a child psychiatric clinic (Pedological Institute, Duivendrecht) in the context of a number of studies regarding the characteristics of children admitted to various child welfare and mental health settings. Cumulatively, group care worker data for more than 1400 children were collected, covering a wide range of different types of child welfare and mental health services in The Netherlands. These services include both residential treatment and day treatment. For the present study, only children receiving residential treatment were selected. The rationale for this restriction is that, even though a heterogenous group of children from various settings is involved, all children receive care for 24 hr a day within the institution by group care workers with a comparable background (i.e., a similar college education). Because of the 24-hr treatment, group care workers have the same extensive opportunities to experience children as their parents do.

The sample consisted of 614 boys (73%) and 232 girls (27%), with a mean age of 11 years (range 4–18 years). Divided into CBCL sex and age groups, there were 389 boys aged 4–11 years (46%), 225 boys aged 12–18 years (27%), 127 girls aged 4–11 years (15%), and 105 girls aged 12–18 years (12%). With respect to type of setting, 336 children (40%) were receiving treatment in a mental health center when the CBCL was filled out, and 510 children (60%) were receiving treatment in child welfare services. The institutions are located in various areas in The Netherlands.

Instrument

The CBCL is a questionnaire designed to quantify children's problems and competencies as reported by their parents in a standardized way (Achenbach, 1991a). The questionnaire consists of two sections, one concerning competencies and the other concerning emotional and behavioral problems. In this study, only the data from the problem section are used. This section consists of 118 questions on specific behaviors, for which parents indicate whether and how often this behavior has occurred

on a 3-point scale. The reliability and validity of the parent version of the CBCL are considered satisfactory. American as well as Dutch norms are available for the total score as well as the various syndrome scores, separately for boys and girls at ages 4–11 and 12–18 (Achenbach, 1991a; Verhulst, Vander Ende, & Koot, 1996).

Procedure

The data were gathered according to two guidelines, depending on the particular study. In some institutions, group care workers were asked to fill out the CBCL as part of the intake procedure, approximately 3–6 months after admission. In these cases the data of all children newly admitted within a specific time period were collected. In other institutions, data of all children who were treated in the institution during a specific time period were collected (i.e., both newly admitted children and children already in the institution). Combining these two procedures does not seem a problem, as this study focuses on the variation in judgements on children's behavior as opposed to the course of treatment or related issues. Both procedures result in few missing cases, ruling out any selection bias within the institutions.

Statistical Analyses

Achenbach's CBCL factor structure was tested in two ways. Firstly, we examined the eight-factor model of narrow-band syndromes (first-order model). Secondly, we tested the two-factor model of broad-band syndromes (second-order model) in which the broad-band syndrome Internalizing was represented by the narrow-band syndromes Withdrawn, Somatic Complaints, and Anxious/Depressed, and the broad-band syndrome Externalizing was represented by the narrow-band syndromes Delinquent Behavior and Aggressive Behavior. The remaining narrow-band syndromes Social Problems, Thought Problems, and Attention Problems represented both broad-band syndromes.

We used the Confirmatory Factor Analysis (CFA) procedure in LISREL 8 (Version 8.12; Jörkeskog & Sörbom, 1995). The analysis of the first-order model was analogous to Dedrick *et al.* (1997). This analysis includes 85 of the 118 CBCL items. These items constitute the CBCL core syndromes. Four items belong to two syndromes, whereas one item is part of three syndromes. A matrix of polychoric correlations (85 items) was computed and we used unweighted least squares (ULS) estimation procedures to test the eight correlated factor model and two alternative models with (a) eight uncorrelated factors and (b) one global factor. We used Achenbach's (1991a) criteria for factor loadings. To be included on a syndrome, an item should have a loading $>.30$, except on Aggressive Behavior, which requires factor loadings $>.40$. To test the second-order model, a matrix of Pearson correlations among the eight latent factors was computed (disattenuated for error) and ULS procedures were used to test the two correlated factor model in which Social Problems, Thought Problems, and Attention Problems were allowed to load freely on both higher-order factors. As with the first-order model, we tested two alternative models with (a) two uncorrelated factors and (b) one global factor. The fit of the analyzed models was evaluated by means of four measures proposed by Jörkeskog and Sörbom (1995): (a) the chi-square likelihood ratio statistic, (b) goodness of fit index (GFI), (c) adjusted goodness of fit index (AGFI), and (d) root mean square residual (RMR). The chi-square statistic is known to be sensitive to sample size, and therefore often indicates a statistically significant lack of fit. Hence, it is customary to draw more heavily on the other three measures. To interpret these measures we used Verschuren's criteria of fit (Verschuren, 1991). For (A)GFI the criteria are the following: for (A)GFI $>$ .950 the fit of the model is good, for .900–.950 the fit is acceptable, for .850–.900 the fit is more or less acceptable, and for $<.850$ the fit of the model is unacceptable. Some results of the present study are compared with those of Dedrick *et al.* (1997) and De Groot *et al.* (1994), who tested the CBCL-factor model for the parent version of the CBCL. The data for the study by Dedrick *et al.* (1997) were based on a sample of 631 American youngsters (aged 8–18 years) with serious emotional disturbances. De Groot *et al.* (1994) based their confirmatory factor analysis on a sample of 2,335 clinically referred Dutch children and youngsters (aged 4–18 years).

RESULTS

Table I presents the fit statistics for the eight-correlated-factor model of narrow-band syndromes and the two alternative models. As expected, the chi-square

Table I. Fit Indexes for First-Order Models ($N = 846$)

Model	χ^2	*df*	GFI	AGFI	RMR
Null	109037.651	3570			
One factor	32191.400	3485	.778	.767	.102
Eight uncorrelated factors	67774.449	3479	.532	.509	.148
Eight correlated factors	20423.959	3451	.859	.851	.081

Note. GFI: Goodness of fit index; AGFI: Adjusted goodness of fit index; RMR: Root mean square residual.

indicates a statistically significant lack of fit for all three models. Taking into account the other three fit statistics, the eight-correlated-factor model does fit. The values of GFI, AGFI, and RMR are .859, .851, and .081, respectively. According to Verschuren's criteria, only the fit of this eight-correlated-factor model is more or less acceptable (Verschuren, 1991). The values of GFI, AGFI, and RMR in Table I are comparable with the values for the eight-correlated-factor model found in the studies by Dedrick *et al.* (1997) (.910, .905, and .086, respectively) and De Groot *et al.* (1994) (.885, .878, and .096, respectively).

In Table II, the average standardized loadings for the eight-correlated-factor model are listed, and supplemented with the means found by Dedrick *et al.* (1997) and De Groot *et al.* (1994). Moreover, internal consistency (Cronbach's alpha) and test-retest reliability of the scales for the present study are presented. Test–retest reliability of the scales was determined in a subsample ($N = 31$) with an interval of 3 weeks. The mean of the 91 loadings (85 items, plus the double loadings of four items, and the triple loadings of one item) is not as high in the present study (.48) as that found by Dedrick *et al.* (.57) and De Groot *et al.* (.58). However, the results of our study seem to be comparable with the outcomes of the other two studies. Fourteen of the 91 loadings in the present study do not meet Achenbach's criterion for acceptable factor loadings. Six items with unacceptable loadings belong to the Attention Problems syndrome. These are as follows: Item 1 ("acts too young"), Item 17 ("daydreams"), Item 45 ("nervous, tense"), Item 62 ("clumsy"), and Item 80 ("stares blankly"). The remaining items with unacceptable loadings include Item 103 ("unhappy, sad") of the Withdrawn syndrome; Item 56d ("eye problems") and Item 56e ("skin problems") of the Somatic Complaints syndrome; Item 32 ("needs to be perfect") of the Anxious/Depressed syndrome; Item 55 ("overweight") and Item 64 ("prefers younger kids") of the Social Problems syndrome; Item 80

Table II. Average Standardized Loadings for Achenbach's Eight-Correlated-Factor Model for the Present, Dedrick *et al.* (1997), and De Groot *et al.* (1994) Study

Syndrome	Number of items	Mean of factor loadings	Range	Number of items >.30	Number of items >.40	Cronbach's α	Test–retest
Withdrawn	9						
Present study		.42	.03–.62	8	7	.72	.95
Dedrick *et al.*		.49	.17–.73	7	7		
De Groot *et al.*		.44	.04–.86	7	4		
Somatic	9						
Present study		.50	.13–.72	7	7	.84	.97
Dedrick *et al.*		.68	.46–.84	9	9		
De Groot *et al.*		.62	.29–.78	8	8		
Anxious/Depressed	14						
Present study		.55	.29–.78	13	11	.83	.99
Dedrick *et al.*		.57	.19–.80	13	12		
De Groot *et al.*		.61	.31–.83	14	13		
Social	8						
Present study		.48	.14–.88	6	5	.73	.87
Dedrick *et al.*		.62	.32–.81	8	6		
De Groot *et al.*		.48	.14–.87	5	5		
Thought	7						
Present study		.52	.06–.74	6	6	.72	.93
Dedrick *et al.*		.64	.37–.73	7	6		
De Groot *et al.*		.54	.25–.74	6	6		
Attention	11						
Present study		.38	.05–.78	6	5	.77	.72
Dedrick *et al.*		.37	−.24–.73	8	8		
De Groot *et al.*		.48	.10–.87	8	8		
Delinquent	13						
Present study		.44	.12–.73	11	7	.75	.94
Dedrick *et al.*		.60	.27–.82	12	12		
De Groot *et al.*		.60	.33–.82	13	10		
Aggressive	20						
Present study		.58	.49–.81	20	20	.90	.96
Dedrick *et al.*		.63	.36–.74	19	19		
De Groot *et al.*		.70	.55–.80	20	20		

Table III. Intercorrelations Among the Eight Syndrome Scales ($N = 846$)

Syndrome	1	2	3	4	5	6	7	8
1. Withdrawn	1.000							
2. Somatic	.285	1.000						
3. Anxious/Depressed	.574	.483	1.000					
4. Social	.521	.236	.531	1.000				
5. Thought	.447	.336	.546	.477	1.000			
6. Attention	.219	.219	.362	.587	.450	1.000		
7. Delinquent	.150	.149	.362	.374	.246	.529	1.000	
8. Aggressive	.074	.193	.402	.549	.293	.701	.813	1.000

Note. All correlations are based on latent variables (i.e., disattenuated for error) and are statistically significant ($p < .05$).

("stares blankly") of the Thought Problems syndrome; Item 101 ("truancy") and Item 105 ("alcohol, drugs") of the Delinquent Behavior syndrome. On average, the largest mean of factor loadings is found in the Aggressive Behavior syndrome (.58) whereas the smallest loadings are on the Attention Problems syndrome (.38). In Dedrick *et al.*'s study, 8 loadings do not meet Achenbach's criterion. Of these eight loadings, three items (Item 1 ("acts too young"), Item 62 ("clumsy"), and Item 80 ("stares blankly") of the Attention Problems syndrome) also have unacceptable loadings in the present study. In De Groot *et al.*'s study, 10 loadings did not meet the criterion. Of these 10 loadings, seven are unacceptable in our study as well (Item 103 ("unhappy, sad") of the Withdrawn syndrome; Item 56e ("skin problems") of the Somatic Complaints syndrome; Item 55 ("overweight") of the Social Problems syndrome; Item 80 ("stares blankly") of the Thought Problems syndrome; Item 1 ("acts too young"), Item 45 ("nervous, tense"), and Item 80 ("stares blankly") of the Attention Problems syndrome). The Alpha coefficients (α) for the scales in the present study range from $\alpha = .72$ (for the Withdrawn syndrome and the Thought Problems syndrome) to .90 (for the Aggressive Behavior syndrome). Test–retest correlations range from .72 (for the Attention Problems syndrome) to .99 (for the Anxious/Depressed syndrome). These results indicate that the scale scores are stable across a short period of time, and therefore seem to represent relatively stable patterns of behavior.

In Table III the intercorrelations among the eight syndromes are listed. These disattenuated correlations are based on the latent variables and take into account measurement error. All correlations are statistically significant ($p < .05$). The correlations range from .074 (Delinquent Behavior and Withdrawn) to .813 (Aggressive Behavior and Delinquent Behavior). This matrix serves as the input for the test of the two-correlated-factor model.

Table IV summarizes the fit statistics for the two-correlated-factor model of broad-band syndromes in which second-order loadings for Social Problems, Thought Problems, and Attention Problems were allowed to load freely on both higher order factors and for the two alternative models. Again, the chi-square indicates a statistically significant lack of fit for all three models. However, taking into account the other three fit statistics, the two-correlated-factor model does fit. The values of GFI, AGFI, and RMR are .989, .976, and .053, respectively. According to Verschuren's criteria, only the fit of this two-correlated-factor model is good (Verschuren, 1991).

Figure 1 presents the complete standardized parameter estimates for the two-correlated-factor model. The standardized loadings of the eight narrow-band syndromes are all significant ($p < .05$) and range from .112 to .995 (mean loading = .572). The correlation between the second-order factors of Internalizing and Externalizing is .354 ($p < .05$).

DISCUSSION

The aim of this study was to examine whether the factor structure of the parent version of the CBCL is also applicable to CBCL ratings of group care workers. To accomplish this aim, group care workers' ratings of 846 residentially treated children were factor analyzed. Two confirmatory factor analyses were conducted. In a first-order factor analysis we tested whether the original eight CBCL narrow-band syndromes found for parental ratings also fit the ratings of group care workers. The results support the applicability of the first-order eight

Table IV. Fit Indexes for Second-Order Models ($N = 846$)

Model	χ^2	*df*	GFI	AGFI	RMR
Null	4449.263	28			
One factor	486.769	20	.938	.888	.126
Two uncorrelated factors	345.915	17	.956	.906	.107
Two correlated factors	84.493	16	.989	.976	.053

Note. GFI: Goodness of fit index; AGFI: Adjusted goodness of fit index; RMR: Root mean square residual.

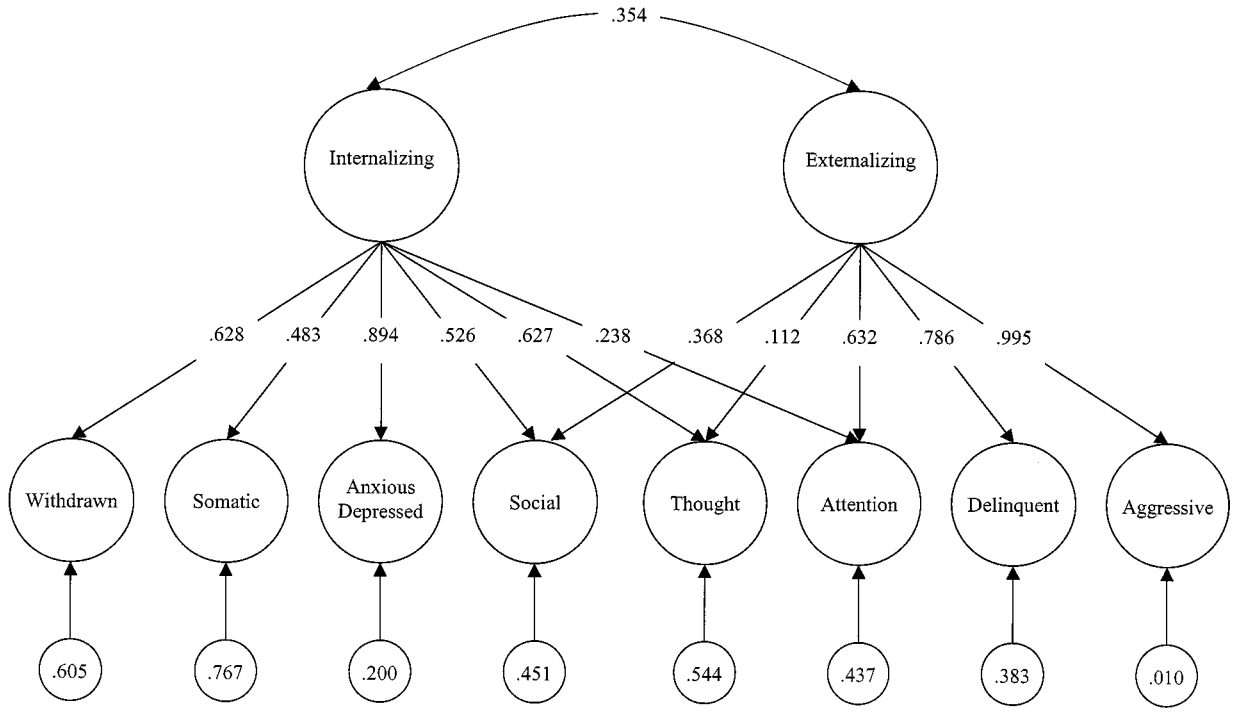

Fig. 1. Standardized parameter estimates for Achenbach's correlated second-order model in which Social Problems, Thought Problems, and Attention Problems are allowed to load freely.

correlated-factor model to the ratings of group care workers. Subsequently, in a second-order factor analysis we tested whether the two broad-band factors Internalizing and Externalizing could be used to summarize the scores of the eight narrow-band syndromes. The results of this analysis support the applicability of the second-order two-factor model. Taken together, the two analyses provide support for the applicability of Achenbach's original CBCL factor structure to the child behavior ratings of group care workers. This is a gratifying result. Three points, nonetheless, have to be considered.

First, according to the criteria by Verschuren (1991) criteria, the fit of the eight-correlated-factor model was "more or less acceptable." The values of the GFI and AGFI were comparable with those of the analysis of the CBCL ratings of Dutch parents (De Groot *et al.*, 1994), but somewhat lower than the values found by Dedrick *et al.* (1997) in their analysis of the ratings of American parents. It may be that the eight-factor model based on the ratings of parents is less applicable to the behavioral ratings of group care workers. However, it is equally possible that differences between cultures play a part in explaining this result. Further research in which confirmatory factor analyses are conducted on the ratings of several informants in different cultures (including group care workers) might provide more information in this regard.

Second, examination of the factor loadings of the items reveals that nearly half of the items of the Attention Problems syndrome (5 out of 11) did not meet the criterion of sufficient loading (>.30), whereas on all the other syndromes at least 75% of the items did meet this criterion. On the Aggressive Behavior syndrome, all of the items met the criterion of a loading >.40. With regard to the items of the Attention Problems syndrome, it is striking that the six items with sufficient loadings are all in agreement with the criteria of the Attention-Deficit/Hyperactivity Disorder (ADHD) of the DSM-IV (American Psychiatric Association, 1994). These items are Item 8 ("can't concentrate"), Item 10 ("can't sit still"), Item 13 ("confused"), Item 41 ("impulsive"), Item 46 ("twitches"), and Item 61 ("poor schoolwork"). The five items that did not meet the criterion of sufficient loading do not have a counterpart in the DSM-IV ADHD-criteria. This finding suggests that the group care workers' ratings as summarized by the Attention Problems syndrome yield a closer match to the DSM-IV ADHD-syndrome than do the parents' ratings. It may be that the professional background of the group care workers and their contacts with other professionals in staff meetings (e.g., child psychiatrists, developmental psychologists) have shaped their perception of attention-deficit/hyperactivity problems in such a way that it is geared to the overall view of "the field." It may also be

that the study group of residentially treated children included many children with severe ADHD, which illuminated the relationship between the specific behaviors associated with this syndrome. Confirmatory factor analysis of parent ratings of residentially referred children and ratings of other professionals might provide a test of this hypothesis.

Third, it can be concluded that the two-correlated-factor model, which includes the syndromes Internalizing and Externalizing, has a good fit. It is striking, though, that the Attention Problems syndrome again deserves some consideration. This syndrome has a relatively high loading on the Externalizing syndrome (.632) and a relatively low loading on Internalizing (.238). Although this finding is comparable with the Achenbach findings (Achenbach, 1991a), the present analysis suggests that the Attention Problems syndrome is part of the Externalizing higher-order syndrome in stead of being a so-called "mixed higher-order syndrome," which presumes approximately equal loadings on both Internalizing and Externalizing. A similar problem can be observed with regard to the Thought Problems syndrome, originally also thought to be a mixed syndrome. Here there is a relatively high loading (.627) on Internalizing and a relatively low loading (.112) on Externalizing. It appears that the Thought Problems syndrome is a part of the higher-order Internalizing syndrome. The Social Problems syndrome therefore seems to be the only true higher-order mixed syndrome. This is a highly speculative hypothesis, which again can be explained by the group care workers' perceptions in general, or the nature of the problems in the present sample or a combinations of both. The above-mentioned confirmatory factor analysis of behavioral ratings of residentially treated children by parents and other professionals might additionally provide a test of these hypotheses.

The present analysis of the factor structure is an important first step in the psychometric analysis of the CBCL for group care workers. Although further studies are needed to confirm our results, this study has important implications for clinical practice as well as for researchers working in this field. The interchangeability of the group care worker scales and their parent-based counterparts supports what these professionals have been doing for years. As a second step, further research is needed to develop norms for the CBCL for group care workers. In constructing these norms one has to account for the fact that, unlike parents, group care workers cannot be considered a homogeneous group. Hence, CBCL scores will vary among treatment settings. Choosing an appropriate reference group is therefore an important issue at this second step. It is conceivable that normative data for a number of residentially treated or day-treated reference groups will be gathered and that the scores of an individual child, or a group of children, can be matched with any of these groups. Developing such norms will greatly enhance the use of the CBCL for group care workers.

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REFERENCES

Achenbach, T. M. (1991a). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile.* Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991b). *Manual for the Teacher's Report Form and 1991 Profile.* Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991c). *Manual for the Youth Self-Report and 1991 Profile.* Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile.* Burlington, VT: University of Vermont, Department of Psychiatry.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington DC: Author.

Bates, B. C., English, D. J., & Kouidou-Giles, S. (1997). Residential treatment and its alternatives. A review of the literature. *Child & Youth Care Forum, 26,* 7–51.

Brown, J. S., & Achenbach, T. M. (1997). *Bibliography of published studies using the Child Behavior Checklist and related materials published through April 1, 1997.* Burlington, VT: University of Vermont, Department of Psychiatry.

Dedrick, R. F., Greenbaum, P. E., Friedman, R. M., Wetherington, C. M., & Knoff, H. M. (1997). Testing the structure of the Child Behavior Checklist/4-18 using confimatory factor analysis. *Educational and Psychological Measurement, 57,* 306–313.

De Groot, A., Koot, H. M., & Verhulst, F. C. (1994). Cross-cultural generalizability of the Child Behavior Checklist cross-informant syndromes. *Psychological Assessment, 6,* 225–230.

Jörkeskog, K. G., & Sörbom, D. (1995). *LISREL 8 user's reference guide.* Chicago: Scientific Software International.

Kazdin, A. E., & Bass, D. (1988). Parent, teacher, and hospital staff evaluations of severely disturbed children. *American Journal of Orthopsychiatry, 58,* 512–523.

Ten Brink, L. T. (1998). *De ontwikkeling van kinderen tijdens een periode van klinische jeugdzorg.* Status, beloop en prognose. (The Development of Children during Clinical Youth Care. Status, Course and Prognosis). Dissertation, Paedologisch Instituut, Amsterdam/Duivendrecht.

Verhulst, F. C., Ende, J. van der, & Koot, H. M. (1996). *Handleiding voor de CBCL/4-18.* (Manual of the CBCL/4-18). Rotterdam: Afdeling Kinder-en Jeugdpsychiatrie, Sophia Kinderziekenhuis/Academisch Ziekenhuis Rotterdam/Erasmus Universiteit Rotterdam.

Verschuren, P. J. M. (1991). *Structurele modellen tussen theorie en praktijk.* (Structural Models between Theory and Practice). Utrecht: Het Spectrum.